CLAIMS

1. A network of inter-connectable optical fibers equipped, at strategic locations, with devices that can respond to optical signals emanating from a particular source as part of a message or data stream to determine the destination and select suitable fibers to assure its arrival at the point of destination, using at said locations

a. lambda-extractor switches for single frequencies to signal the switching logic;

b. nanosecond responsive switches to re-direct the data flow into appropriate other optical fibers on an instantaneous time basis;

c. massive cross-connecting switches that enable the connection to any incoming fiber to any outgoing fiber within one module in a mechanically asynchronous manner.

2. The network according to claim 1 in which the message to be sent is preceded by optical code signals that identify the destination causing the setting up of the appropriate photonic switches to connect the incoming fiber to the relevant outgoing fiber using the switch configuration and network architecture described herein.

3. The network according to claim 1 wherein a lambda extractor device that is able to extract individual single frequencies from a glass fiber that carries many frequencies in parallel, said single frequency being useful, as part of other single frequencies, to operate a logic circuit which sets the photonic switches according to claim 2.

4. The network according to claim 1 wherein the nanosecond switch for optical data streams operates with polarized light and Brewster Angle reflection or transmission in accordance with the polarity of the incoming and/or outgoing light.

5. The network defined in claim 1 wherein each of said cross switch connect any incoming fiber in a given space to any outgoing fiber in said space using optical projection between designated, switchable fibers.

6. A method of achieving cross-switching of optical signals from various fiber ends to other various fiber beginnings, which method features a space across which the optical signals are transmitted, that method allowing any X/Y location within a matrix pattern to be addressed by obliquely aimed laser beams converting said space to achieve an optical connection between input and output.

7. A cross-connecting switch which operates according to the method defined in claim 11 whereby said switch feature two planes in juxtaposition, with light beams traversing said space from a first plate aiming at a second plate, with said first plate possessing one or more fiber entries, at the end of which at each location a tiltable mini lens is mounted whose position is controllable to aim at any X/Y point in the second plate across the intervening space so as to project a coherent laser beam across that space where collector lenses at each fiber end take the incoming light at the specific respective fiber at which it is aimed in order to convey the data stream represented by the light to a new outgoing station.

8. A cross-connect optical switch to achieve individual cross communications traversing said space from one incoming fiber, or any number thereof, to a second fiber, or any selected number thereon, on the second plate, with aid light beams being able to criss-cross each other in the space between the plate so as to simultaneously cross-connect optical data points for the purpose of sending them on their way to their respective destinations.

9. A network according to claim 1 including means for aiming the light beams using optical signals of pre-selected frequencies that contain the switching information necessary to be able to cross-connect from the entry position in name one to the exit position in name two, with said frequencies being extracted from the respective fibers via resonant couplers and then submitted to photo resistors and microprocessors which translate the incoming signals to the geometric X/Y position at which the incoming beams must be aimed.

10. A network according to claim 2 including a plate one and a plate two contained in a module or package with the fibers ending on plate one each being connected to its own little oculus which is tiltable in the vertical and in the horizontal direction so its exiting, collimated laser beam can be aimed at a selected location on plate two where a collector lens receive the laser beam and enters it into the outgoing fiber to send it on its way towards its destination.

11. A network according to claim 2 into which many fibers are inserted with each fiber ending in an oculus so as to create a plate in which many oculi can individually be rotated and tilted so as to feature a criss-crossing of invisible laser beams across a space providing photonic coupling without first pre-converting to electrons and then generating photons, with said oculi enabling the criss-crossing of photonic information from one plane to another plane by aiming said oculi in various, independently selectable positions.

12. A network lens according to claim 2, wherein within the spherical body of oculus is a minlens that collects the light exiting from the fiber that is tied to the end of the oculus and from there funneling the collected light towards a collimator lens so as to generate a parallel laser beam output whose direction can aim transversely across a space at a selected collector, lens with the distance from the oculus to said collector lens being o no consequence since the laser beam is parallel by nature and tiny in diameter without being affected by dispersion events.

13. A network as described in claim 1 where an incoming fiber carries two types of information, with the first information representing the switching instructions for the oculi and the other frequencies being operative to convey information such as speech or data or video information, said system flowing the cross connection from a first area of activity to a second area of activity, with the cross switch being the crucial element in the system because of its ability to route information to its various points of destination and to do so by purely optical means.

14. An oculus consisting of a spherical shape preferably made of glass that can rotate like an eyeball in its socket, with said glass containing an equatorial electrode on its outside that is able to interact wit a variety of electrodes inscribed in the holding plate so as to allow, when activated, to tilt the oculus up or down or left and right to aim it an X/Y location across the space using these fine electrode gratings to cause the adjustment of the oculus position through electrical attraction or other means in accordance with an entry signal.